

Spin Dynamics of Photons During Reflection Events and the Principle of Conversion of Angular Momentum into Spin (Magnetic) Energy During Inversion; Novel Photon-to-Magnetism Data Encoding Mechanism

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Introduction

In exploring the plausibility of utilizing walls of energetic electrons flowing in a transverse direction with respect to photons in order to bring about repeated reflection of photons between mirrors made entirely of energy, a fundamental assumption about the physical process driving the phenomenon of the reflection of light, it seems, needs to be re-evaluated.

Although light can be generated through spontaneous emission; a process that is better understood than reflection; a fundamental assumption has pervaded the optics community that reflection involves a spontaneous emission event i.e. photons must be converted into another form of energy and that the reflected photon is not the same photon that struck the reflective material.

Abstract

Reflection requires the alignment of atoms in particular configuration because only when sufficient numbers of electrons come into alignment are Coulomb Force Lines of sufficient magnitude generated in order to produce inversions in the angular momentum of light. This would constitute a true "reflection" and would mean that the dynamics of photons during optical reflection are, in fact, an understudied phenomenon of physics requiring additional study by the community at large.

If we could watch one of these reflection events in extremely slow motion and could see the process in all of its detail, including the axis spin of the photon, we would see that photons are being slowed by Coulomb Force Lines and experience a period of traveling at sub-light speeds during this process. As light is both spinning and phasing in addition to its overall angular momentum, the previous angular velocity of the spinning body of the photon should be conserved in accordance with Newtonian principles. As the repulsive forces of aligned electrons act to repel photons and they are slowed on the attosecond timescale, spin velocity should increase to hundreds of times the normal rate during the reflection process.

This increased spin should, importantly, generate a comparatively powerful magnetic field around the photon which is projected in any direction in which the photon's magnetic dipole is oriented.

Just as the deceleration of phase of the photon during a reflection event must be gradual, so must be acceleration phase when the photon begins moving in the opposite direction. When a rubber ball is bounced off of a wall, this process is governed by the conversion of kinetic energy into the compression of a flexible material which, when it acts to decompress, pushes the ball away from the wall forcefully; nearly as fast as it was moving when it struck the wall.

In the case of a photon, however, the energy to achieve this must be derived from the accumulated axis spin in individual photons. Light, although it has little mass, has some amount of mass. This quantity is so small that any influence (sc. magnetism) that may counteract gravitational forces (sc. neutrinos) has the effect of further reducing the amount of energy needed to accelerate that body. Wrapped in a shell of transiently amplified magnetism, these reflecting photons may be accelerated back to what we call "light speed" by Coulomb Forces alone. This may take on the appearance of the light's mass being reduced to zero, however, importantly, it is not the light's mass that is being reduced to zero but its weight.

It is my contention that it not the spontaneous re-emission of light that underpins "reflection" but that is, in fact, the aforementioned conversion of angular momentum into spin; thence into magnetism, thence into weight reduction that underpins the process of inverting the angular momentum of light.

Conclusion

If light is routinely converted into powerful magnetism simply by dint of its own angular inversion, any mechanism that collocates a reflective surface with a magnetic surface as well as a mechanism for applying spin torque to a photon just prior to a reflection event would enable data to be encoded by photons upon magnetic substrates with extreme precision provided that such a substrate consisted of alternating ferromagnetic and reflective sections.

Data could, under this paradigm, be retrieved or "read" from such a system by way of emitting light toward the reflective surfaces absent the presence of spin torque and by measuring the far more subtle spin torque brought about by the magnetic alignment of the ferromagnetic material.